SUPPLEMENTAL MATERIAL

Supplemental Tables

Supplemental Table I. Causes of cardioembolic stroke[a]

	Total (N = 476) – n. (%)
High-risk source	
Past medical history of atrial fibrillation	251 (53)
Newly diagnosed atrial fibrillation	111 (23)
Mechanical prosthetic valve	18 (4)
Myocardial infarction <4 weeks before ischemic stroke	9 (2)
Infective endocarditis	7 (1)
Sick sinus syndrome	5 (1)
Left ventricular thrombus	4 (1)
Akinetic left ventricle segment	4 (1)
Medium-risk source	
Other cardiomyopathy	13 (3)
Atrial flutter	9 (2)
Bioprosthetic valve	3 (2)
Patent foramen ovale	3 (1)
Myocardial infarction >4 weeks <6 months before ischemic stroke	3 (1)
Other[b]	8 (2)

[a]Patients may have more than one reported cardiac source of stroke.
[b]Other: Left ventricle fibrillation, mitral valve prolapse, atrial septum defect, heart failure.

Supplemental Table II. Baseline characteristics of large vessel occlusion stroke patients with moderate (51-70%) and severe (71-99%) stenosis of the ipsilateral cervical carotid artery measured according to NASCET method

	Cervical carotid stenosis (N = 82)[a]		
	51-70% stenosis (n = 36)	71-99% stenosis (n = 46)	P-value
Median age, years (IQR)	69 (63-81)	71 (63-76)	0.73
Men, n (%)	16/36 (44)	32/46 (70)	0.02
Medical history			
Diabetes mellitus, n/N (%)	5/35 (14)	5/46 (11)	0.64
Hypertension, n/N (%)	15/34 (44)	18/46 (39)	0.65
Ischemic stroke, n/N (%)	8/35 (23)	6/46 (13)	0.25
Medication			
DOAC, n/N (%)	0/36 (0)	0/45 (0)	n/a
Vitamin K antagonist, n/N (%)	1/36 (3)	1/46 (2)	1.00
Antiplatelets, n/N (%)	10/35 (29)	15/46 (33)	0.70
IV rtPA prior to EVT, n (%)	32/36 (89)	40/46 (87)	0.79
Pre-stroke mRS, n/N (%)			0.68
0	23/34 (68)	35/46 (76)	
1	6/34 (18)	8/46 (17)	
2	2/34 (6)	2/46 (4)	
≥3	3/34 (9)	1/46 (2)	
Clinical characteristics			
Median baseline NIHSS (IQR)[b]	15 (13-23)	16 (11-20)	0.88
Median systolic blood pressure in mmHg (IQR)	152 (139-166)	159 (148-170)	0.20
Median diastolic blood pressure in mmHg (IQR)	80 (72-90)	84 (72-94)	0.39
Median onset-to-groin in minutes (IQR)	223 (172-270)	196 (144-248)	0.09
Laboratory investigations			
Median serum glucose (IQR)[c]	7.0 (6.3-8.3)	6.5 (5.7-7.7)	0.10
Median platelet count (IQR)[d]	253 (199-315)	244 (200-277)	0.37

Median INR (IQR)[e]	1.0 (1.0-1.1)	1.0 (1.0-1.1)	0.73
Imaging characteristics			
Median ASPECTS (IQR)[f]	9 (7-9)	8 (7-10)	0.92
Occlusion location on CT-angiography, n/N (%)			0.82
ICA	3/36 (8)	2/46 (4)	
ICA-T	8/36 (22)	11/46 (24)	
Proximal M1	10/36 (28)	17/46 (37)	
Distal M1	14/36 (39)	13/46 (28)	
M2	1/36 (3)	3/46 (7)	
Hyperdense artery sign, n/N (%)	21/32 (66)	27/46 (59)	0.54
Median TAI in Hounsfield units (IQR)[g]	4.9 (-0.8-11.2)	3.7 (-2.6-33.1)	1.00
Clot length (mm) (IQR)[h]	10.9 (9.8-23.1)	26.4 (19.2-33.3)	0.03

ASPECTS indicates Alberta Stroke Program Early CT Score; DOAC, direct oral anticoagulant; EVT, endovascular treatment; INR, international normalized ratio; ICA(-T), internal carotid artery(-terminal); IQR, interquartile range; IV rtPA indicates intravenous recombinant tissue plasminogen activator; M1, first segment of middle cerebral artery; M2, second segment of middle cerebral artery; mRS, modified Rankin Scale score; NASCET, North American Symptomatic Carotid Endarterectomy Trial; NIHSS, National Institutes of Health Stroke Scale; TAI, thrombus attenuation increase (Δ). [a]Of 190 patients with cervical carotid atherosclerosis, 36 had a stenosis degree of 51-70%, 46 of 71-99% and 108 had an occlusion of the extracranial internal carotid artery. Missing: [b]2; [c]11; [d]10; [e]13; [f]3, [g]65, [h]65.

Supplemental Table III. Clinical outcomes of large vessel occlusion stroke patients with moderate (51-70%) and severe (71-99%) stenosis of the ipsilateral cervical carotid artery measured according to NASCET method

	Cervical carotid stenosis (N = 82)			
	51-70% stenosis (n = 36)	71-99% stenosis (n = 46)	Common OR (95% CI)	Adjusted (common) OR (95% CI)
Median mRS at 90 days (IQR)[a]	3 (1-6)	2 (1-3)	1.91 (0.82 – 4.46)	1.70 (0.70 – 4.15)
mRS 0-2 at 90 days, n/N (%)	13/32 (41)	28/45 (62)	1.89 (0.71 – 5.01)	1.66 (0.49 – 5.57)
Mortality at 90 days, n/N (%)	9/32 (28)	5/45 (11)	0.42 (0.13 – 1.35)	0.26 (0.05 – 1.39)
Symptomatic ICH, n/N (%)	3/36 (8)	0/46 (0)	n/a	n/a

ICH indicates symptomatic intracranial hemorrhage; IQR, interquartile range; OR, odds ratio; mRS, modified Rankin Scale score; NASCET, North American Symptomatic Carotid Endarterectomy Trial. [a]Missing: 5.

Supplemental Table IV. Baseline characteristics of patients with large vessel occlusion stroke with incomplete recanalization (eTICI 0-2A)

	eTICI 0-2A (N = 299)		
	Cervical carotid atherosclerosis (n = 90)	Cardioembolism (n = 209)	P-value
Median age, years (IQR)	71 (64-79)	76 (67-84)	<0.01
Men, n (%)	58 (64)	96 (46)	<0.01
Medical history			
Diabetes mellitus, n/N (%)	12/88 (14)	35/208 (17)	0.49
Hypertension, n/N (%)	41/88 (47)	130/208 (63)	0.01
Ischemic stroke, n/N (%)	12/88 (14)	47/209 (23)	0.08
Medication			
DOAC, n/N (%)	0/87	18/205 (9)	<0.01
Vitamin K antagonist, n/N (%)	2 (2)	71/207 (34)	<0.001
Antiplatelets, n/N (%)	28 (31)	59/205 (29)	0.69
IV rtPA prior to EVT, n (%)	78 (87)	124/209 (59)	<0.001
Pre-stroke mRS, n/N (%)			<0.01
0	71/88 (81)	121/207 (59)	
1	8/88 (9)	39/207 (19)	
2	5/88 (6)	17/207 (8)	
≥3	4/88 (5)	30/207 (15)	
Clinical characteristics			
Median NIHSS (IQR)[a]	16 (13-19)	16 (12-20)	0.76
Median systolic blood pressure in mmHg (IQR)[b]	160 (145-175)	152 (133-170)	0.01
Median diastolic blood pressure in mmHg (IQR)[c]	84 (71-94)	84 (71-95)	0.86
Median onset-to-groin in minutes (IQR)	213 (150-284)	225 (169-300)	0.43
Laboratory investigations			
Median serum glucose (IQR)[d]	6.5 (5.8-8.1)	6.9 (6.08.2)	0.20

Median platelet count (IQR)[e]	231 (204-276)	222 (185-277)	0.41
Median INR (IQR)[f]	1.0 (1.0-1.0)	1.1 (1.0-1.6)	<0.001
Imaging characteristics			
Median ASPECTS (IQR)[g]	9 (7-10)	9 (7-10)	0.69
Occlusion location on CT-angiography, n/N (%)			<0.001
ICA	16/90 (18)	4/194 (2)	
ICA-T	34/90 (38)	38/194 (20)	
Proximal M1	20/90 (22)	45/194 (23)	
Distal M1	16/90 (18)	68/194 (35)	
M2	4/90 (4)	36/194 (19)	
Hyperdense artery sign, n/N (%)	60/87 (69)	104/193 (54)	0.02
Median TAI in Hounsfield units (IQR)[h]	8.5 (1.6-17.6)	2.2 (-1.7-8.0)	0.04
Clot length (mm) (IQR)[i]	21.5 (18.7-29.8)	13.3 (10.2-16.9)	<0.001

ASPECTS indicates Alberta Stroke Program Early CT Score; DOAC, direct oral anticoagulant; eTICI, extended Treatment in Cerebral Ischemia scale; EVT, endovascular treatment; INR, international normalized ratio; ICA(-T), internal carotid artery(-terminal); IQR, interquartile range; IV rtPA indicates intravenous recombinant tissue plasminogen activator; M1, first segment of middle cerebral artery; M2, second segment of middle cerebral artery; mRS, modified Rankin Scale score; National Institutes of Health Stroke Scale; TAI, thrombus attenuation increase (Δ).
Missing: [a]6; [b]3; [c]6; [d]40; [e]38; [f]45; [g]16, [h]224, [i]224.

Supplemental Table V. Clinical outcomes of patients with large vessel occlusion stroke with incomplete recanalization (eTICI 0-2A)

	eTICI 0-2A (N = 299)		
	Cervical carotid atherosclerosis (n = 90)	Cardioembolism (n = 209)	Adjusted (common) OR/β (95% CI)
Median mRS at 90 days (IQR) [a]	4 (2-6)	5 (3-6)	2.12 (1.17 – 3.83)
mRS 0-2 at 90 days, n/N (%)	26/84 (31)	45/197 (23)	1.86 (0.92 – 3.74)
Mortality, n/N (%)	23/84 (27)	83/197 (42)	0.52 (0.25 – 1.06)
Symptomatic ICH, n/N (%)	6/90 (7)	13/209 (6)	0.94 (0.34 – 2.62)

ICH indicates symptomatic intracranial hemorrhage; IQR interquartile range; OR, odds ratio; mRS, modified Rankin Scale score.
[a]Missing: 18.

Supplemental Figures

Supplemental Figure I. Collateral circulation for patients with large vessel occlusion stroke with moderate and severe stenosis of the ipsilateral cervical carotid artery.
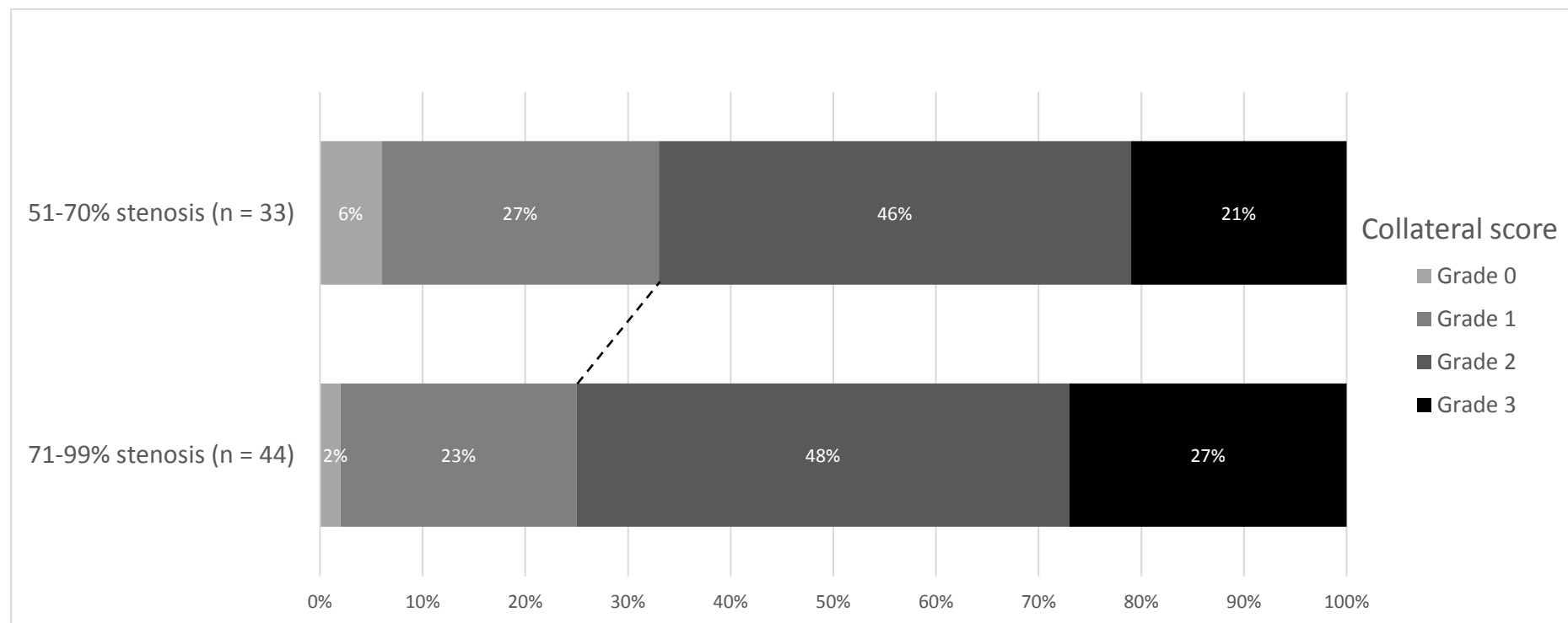
Collateral score was graded by the imaging core laboratory on a 4-point scale, with 0 for absent collaterals (0% filling of the occluded vascular territory), 1 for poor (>0% and ≤50% filling), 2 for moderate (>50% and <100% filling), and 3 for good collaterals (100% filling).
A slightly larger proportion of patients with 71-99% stenosis had a good (grade 2-3-) collateral status compared to those with 51-70% stenosis (33/44 (75%) vs 22/33 (67%), p= 0.423), although this difference was not present after adjustment for confounders (adjusted OR 1.06; 95% CI 0.39 – 2.90). Also in ordinal regression analyses patients with 71-99% stenosis tended to have a shift towards better collateral scores than patients with 51-70% stenosis, although this failed to reach statistical significance (median 2 vs 2, adjusted cOR 1.14, 95% CI 0.47 – 2.60.